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10/806,705	03/22/2004	Hideaki Tsushima	655-022nc2	2611

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EXAMINER	
SINGH, DALZID E	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/806,705	TSUSHIMA ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17 and 19-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17 and 19-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claim 17 is withdrawn in view of the newly discovered reference(s) to Sharma et al. Rejections based on the newly cited reference(s) follow.

Claim Objections

2. Claim 19 is objected to because of the following informalities: claim 19 is depending on a cancelled claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 17 and 19-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "said light source" in line 2 of page 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al (US Patent No. 6,331,906).

Regarding claim 17, an optical cross-connect equipment, shown in Fig. 13, for connecting transmission paths for optical signals, comprising:

a plural number of first transmission apparatuses (160 and 165), being provided corresponding to a plural number of first optical signal transmission paths (shown by the arrows), one by one, for receiving optical signals from said first optical signal transmission paths corresponding thereto;

a plural number of second transmission apparatuses (180 and 185), being provided corresponding to a plural number of second optical signal transmission paths (show by the arrows), one by one, for transmitting optical signals to said second optical signal transmission paths corresponding thereto; and

an optical circuit (150) being able to transmit the optical signals output from said first transmission apparatuses to an arbitrary one of said second transmission apparatuses, wherein each of said first transmission apparatuses, comprises:

a first wavelength demultiplexer (160) for dividing the optical signal received from said first optical signal transmission path into an optical signal of a first wavelength and other optical signals having wavelengths other than that, thereby providing the optical

signals of the wavelengths other than said first wavelength as an output to said optical circuit (see col. 16, lines 15-44; the first wavelength corresponds to supervisory channel); and

a receiver (165) for converting said optical signal of said first wavelength, which is separated from within said first wavelength demultiplexer, into an electric signal (see col. 16, lines 30-35);

a controller (170) for receiving and processing the electric signals converted within said receivers, thereby outputting said processed electric signals, wherein electric signals output from said controller is converted into optical signal of said first wavelength and wherein each of said second transmission apparatuses (see col. 16, lines 15-44), comprises:

outputting an optical signal of said first wavelength (Tx (185) output a light source; since the transmitter (Tx (185)) output optical signal such as the optical supervisory signal or first wavelength, therefore it would have been obvious that there exist light source to output such optical signal); and

a first wavelength multiplexer (180) for multiplexing the optical signals having the wavelengths other than said first wavelength, which are output from said optical circuit, and the optical signal of said first wavelength, which is transmitted from said light source.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (US Patent No. 6,331,906).

Regarding claim 19, in col. 5, lines 52-54, Sharma et al disclose the use of optical wavelength in 1.3 um (1310 nm) and differ from the claimed invention in that Sharma et al do not disclose that the first wavelength has a wavelength band of 1.3 um. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide first wavelength at 1.3 um wavelength. One of ordinary skill in the art would have been motivated to do this in order to provide reduce cost by providing affordable laser, acceptable loss and zero dispersion on single mode fiber.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (US Patent No. 6,331,906) in view of Wong et al (US Patent No. 6,208,444).

Regarding claim 20, as shown in Fig. 13, Sharma et al disclose plurality of multiplexer and demultiplexers. Sharma et al do not disclose a second wavelength demultiplexer positioned between said first transmission apparatus and said optical circuit; and a second multiplexer positioned between said optical circuit and said second

transmission apparatus, wherein the optical signals having the wavelengths other than said first wavelength, which are output from said first transmission apparatuses, make up a first wavelength multiplexed signal, with a plural number of optical signals, each having a different wavelength thereof, and said second wavelength demultiplexer divides said first wavelength multiplexed optical signal into a plural number thereof, each being different in the wavelength thereof, thereby outputting them to said optical circuit, and said second wavelength multiplexer multiplexes the plural number of the optical signals, each having the different wavelength thereof, which are output from said optical circuit, thereby providing a second wavelength multiplexed optical signal, thereby outputting said second wavelength multiplexed optical signal to said second transmission apparatus.

However, Wong et al is cited to show such well known concept. In Fig. 1, Wong et al show plurality of multiplexers/demultiplexers coupled to one another. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide plurality of second demultiplexers and multiplexer between the first transmission apparatus and the optical circuit or between the optical circuit and the second transmission apparatus respectively. For example, a second demultiplexer could be coupled to demultiplexer (160) and a second multiplexer coupled be coupled to multiplexer (180). One of ordinary skill in the art would have been motivated to do this in order to increase transmission capacity by providing greater numbers of channels.

10. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (US Patent No. 6,331,906) in view of Wong et al (US Patent No. 6,208,444) and further in view of Karasan et al (US Patent No. 5,878,177).

Regarding claim 21, as shown in Fig. 7A of Sharma et al, the combination shows regenerator and differs from the claimed invention in that the combination does not specifically disclose that the regenerator is placed between said second wavelength demultiplexer and said optical circuit. However, Karasan et al is cited to show regenerator is placed between demultiplexer and optical circuit such as optical switch (see Fig. 1 of Karasan et al). Therefore it would have been obvious to an artisan of ordinary skill in the art to place regenerator between the demultiplexer and optical circuit as taught by Karasan et al. Since optical signal level degrades as it travels the transmission line, therefore one of ordinary skill in the art would have been motivated to regenerate the optical signal in order to reshape the optical signal.

Regarding claim 22, as shown in Fig. 7A of Sharma et al, the combination shows amplifier and differs from the claimed invention in that the combination does not specifically disclose that the amplifier between said optical circuit and said second wavelength multiplexer. However, it would have been obvious to provide amplifier in the transmission line. Noise generated by optical circuit degrades signal level, therefore one of ordinary skill in the art would have been motivated to provide amplifier in order to increase signal strength.

Regarding claim 23, as shown in Fig. 7A of Sharma et al, the combination shows regenerator and differs from the claimed invention in that the combination does not

specifically disclose that the regenerator is placed between said optical circuit and said second wavelength multiplexer. However, Karasan et al is cited to show regenerator is placed between optical circuit such as optical switch and multiplexer (see Fig. 1 of Karasan et al). Therefore it would have been obvious to an artisan of ordinary skill in the art to place regenerator between the optical circuit such as optical switch and multiplexer as taught by Karasan et al. Noise generated by optical circuit degrades signal level, therefore one of ordinary skill in the art would have been motivated to regenerate the optical signal in order to reshape the optical signal.

Regarding claim 24, as shown in Fig. 7A of Sharma et al, the combination shows regenerator and differs from the claimed invention in that the combination does not specifically disclose that the regenerator is placed between said second wavelength demultiplexer and said optical circuit, and at least one regenerator between said optical circuit and said second wavelength multiplexer. However, Karasan et al is cited to show regenerator is placed before and after the switch (see Fig. 1 of Karasan et al). Therefore it would have been obvious to an artisan of ordinary skill in the art to place regenerator at such locations in order to reshape the optical signal prior to or after the optical circuit (optical switch).

Response to Arguments

11. Applicant's arguments with respect to claim 17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
October 25, 2005

M. R. SEDIGHIAN
PRIMARY EXAMINER